



# **WASTEWATER ENGINEERING**

## **Land Application Permitting Process Manual**

Iowa Department of Natural Resources

February 2012

**Land Application Permitting Process  
Iowa Department of Natural Resources  
Wastewater Engineering Section**

- 1) **Self Assessment and Work Record Request:** a) Owner/Applicant or Consulting Engineer conducts a self assessment and determines that additional wastewater land application sites and/or treatment, storage, and disposal systems are necessary. b) Owner/Applicant or Consulting Engineer completes and submits a Work Record Request form to Wastewater Engineering Section (WES) for a project manager assignment. After DNR receipt of a completed work record request, DNR will setup work record tracking in the WES database and assigns a project manager.
  
- 2) **Engineering report/facility plan:** Consulting Engineer prepares and submits three copies of the **completed** engineering report/facility plan to the DNR wastewater engineering section for review and comments. A checklist is provided in Exhibit- LA1, which must be submitted along with the engineering report/facility plan.
  - a) If new or additional wastewater land application sites are requested, the engineering report/facility plan for the proposed sites must be prepared in accordance with the applicable Iowa wastewater facilities design standards Chapter 21  
<http://www.iowadnr.gov/portals/idnr/uploads/water/wastewater/dstandards/chapter21.pdf?amp;tabid=1316>.
  - b) If wastewater treatment or storage is requested, the engineering report/facility plan for treatment/storage must be prepared and submitted in accordance with the applicable Iowa wastewater facilities design standards Chapter 11 and the wastewater engineering construction permitting process manual.
  - c) If both (a) and (b) are requested, one engineering report/facility plan may be submitted, provided it is prepared in accordance with both the Iowa wastewater facilities design standards Chapter 21, the applicable Iowa wastewater facilities design standards Chapter 11 and the wastewater engineering construction permitting process manual.

Three copies of the facility plan should be mailed to:

Wastewater Engineering Section  
Iowa Department of Natural Resources  
502 E. 9<sup>th</sup> Street  
Des Moines, IA 50319

- 3) **Site Survey:** Consulting Engineer requests a site survey from the appropriate regional Field Office. For new or additional land application, site requests must include at the least the following items in the submittals to the Field Office: **legal descriptions of sites, site maps including the locations of the proposed monitoring wells, and number of acres per site**. For treatment/storage, requests must include at the least the following items in the submittals to the Field Office: **legal descriptions of sites and site maps including the 1500 feet radius to the proposed treatment/storage system**.  
*Field Office locations and contact information can be found at the following link:*  
<http://www.iowadnr.gov/InsideDNR/DNRStaffOffices/EnvironmentalFieldOffices.aspx>.
  
- 4) **Project Number Assignment:** DNR reviews the Engineering Report/Facility Plan for completeness. If **incomplete**, the owner and engineer will be notified indicating the missing items. If **complete**, the owner and engineer will be notified indicating the review status and the assigned **Project Number** for the proposed work.
  
- 5) **Iowa Operation Permit Application:** Upon receipt of a Project Number, the Consulting Engineer must submit an application for a new or amended wastewater Operation Permit to DNR's NPDES Section.

Operation Permit Application Forms 5 and 6 need to be submitted to the NPDES Section and these forms can be found at:

<http://www.iowadnr.gov/InsideDNR/RegulatoryWater/NPDESWastewaterPermitting/NPDESForms/NPDESApplicationForms.aspx>.

- 6) **Engineering Report/Facility Plan Approval:** DNR Project Manager approves Engineering Report/Facility Plan and the approval letter is mailed out to the owner, consulting engineer, DNR Field Office and NPDES Permit Section.
- 7) **Construction Permit Application:** If treatment/storage and or disposal mechanisms are requested, the Consulting Engineer must submit an appropriate Construction Permit Application to the DNR Project Manager.

At minimum, the package must include the following items:

- (a) Three copies of the final plans and specifications certified by an engineer licensed to practice within the State of Iowa.
  - (b) Wastewater Construction Permit Application Schedule A.
  - (c) IDNR Wastewater Disposal System Construction Permit Application Fee Form with fee.
  - (d) Any construction permits application schedules applicable to the proposed project.
- Construction permit application forms can be found at:

<http://www.iowadnr.gov/water/wastewater/downloads.html>

The construction permit application package should be mailed to:

Wastewater Engineering Section  
Iowa Department of Natural Resources  
502 E. 9<sup>th</sup> Street  
Des Moines, IA 50319

- 8) **Construction Permit:** DNR Project Manager Issues Construction Permit (if treatment/storage and or disposal mechanisms are requested).
- 9) **Iowa Operation Permit:** DNR NPDES Section issues new or amended wastewater Operation Permit.

**Technical Assistance:** For wastewater engineering technical assistance regarding Wastewater Land Application proposals, contact:

Suresh Kumar at (515) 281-4527 or [suresh.kumar@dnr.iowa.gov](mailto:suresh.kumar@dnr.iowa.gov).

**Wastewater Engineering Section Website:**

<http://www.iowadnr.gov/InsideDNR/RegulatoryWater/WastewaterConstruction.aspx>

<http://www.iowadnr.gov/InsideDNR/RegulatoryWater/WastewaterConstruction/ConstructionPermits.aspx>

## Exhibit LA1

Iowa Department of Natural Resources  
Wastewater Engineering Section

### Land Application Engineering Report Scope of Study Checklist

Facility Name: \_\_\_\_\_

Facility Location: \_\_\_\_\_

Facility Study Scope: \_\_\_\_\_

The **engineering report** shall contain pertinent information on the proposed site(s) including: location, geology, soil conditions, area for expansion, groundwater conditions and any other factors which may affect the feasibility and acceptability of the proposal. The **engineering report** shall also include pretreatment and storage requirements, a management program stating the objectives of the land application, the design application rates and monitoring. The source should be given for any information used by the consulting engineer in design.

Design Standard Section		Subsection N/A to
<b>21.1</b>	<b>GENERAL DESIGN CONSIDERATIONS</b>	
21.1.1	Site Considerations	
21.1.1.1	Site Identification	
21.1.1.2	Site Criteria Initial Groundwater Quality	
21.1.2	Groundwater	
21.1.2.1	Fieldwork Determination	
21.1.2.2	Initial Groundwater Quality	
21.1.3	Geological Information	
21.1.3.1	Soil Profile	
21.1.3.2	Soil Requirements	
21.1.4	Initial Wastewater Analysis	
21.1.5	Preapplication Treatment	
21.1.6	Land Application Facility	
21.1.6.1	Hydraulic Loading Rate	
21.1.6.2	Nitrogen Loading	
21.1.6.3	Phosphorous Loading	
21.1.6.4	Trace Element Loading	
21.1.6.5	Salinity Restrictions	
21.1.6.6	Disinfection	
21.1.6.7	Crops and Vegetation	
21.1.7	Storage Facility	
21.1.7.1	Storage Time	
21.1.7.2	Construction	
21.1.7.3	Reliability	
21.1.7.4	Storage Option	
21.1.8	Reliability	
21.1.8.1	General	
21.1.8.2	Equipment	
21.1.8.3	Manpower	
21.1.9	Monitoring Systems	
21.1.9.1	Frequency	
21.1.9.2	Parameters	
21.1.9.3	Location	
21.1.9.4	Operational	
21.1.10	Effluent and Groundwater Limitations	
21.1.10.1	Effluent	
21.1.10.2	Groundwater Limitations	
<b>21.2</b>	<b>SLOW RATE LAND APPLICATION</b>	
21.2.1	Site Criteria	
21.2.2	Groundwater	
21.2.2.1	Groundwater Table	
21.2.2.2	Under drain	
21.2.3	Geology	
21.2.4	Topography	
21.2.5	Trace Element Limitations	
21.2.6	Storage Requirements	
21.2.7	Application Restrictions	
21.2.7.1	Application Based on Permeability	
21.2.7.2	Application Based on Limiting Factor	
21.2.7.3	Application During Frost and Runoff	
21.2.7.4	Application to Public Use Areas	
21.2.8	Resting or Drving Period	
21.2.9	Land Owner Agreements	
21.2.10	Water Rights	
<b>21.3</b>	<b>OVERLAND FLOW</b>	
21.3.1	Groundwater	
21.3.2	Geology	
21.3.3	Topography	
21.3.3.1	Slope	
21.3.3.2	Length of Travel	
21.3.4	Storage Requirements	
21.3.5	Overland Flow Facility Design	
21.3.5.1	Hydraulic Loading	
21.3.5.2	Nitrogen Loading	
21.3.5.3	Distribution System	
21.3.5.4	Vegetation	
21.3.5.5	Access	
21.3.5.6	Collection Ditches	
	Additional Items:	